

NORTHWESTERN UNIVERSITY

NASA-CR-197146

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December 20, 1994

Ms. Gloria Blanchard
Space Sciences Directorate
Procurement Directorate
NASA Goddard Space Flight Center
Greenbelt, MD 20771

Dear Ms. Evans,

Enclosed is a final technical report for NASA grant NAGW-2522. There were no patents or inventions.

Sincerely,

Seth Stein

Professor of
Geological Sciences

(NASA-CR-197146) STRAIN
ACCUMULATION MONITORING IN THE NEW
MADRID SEISMIC ZONE USING THE
GLOBAL POSITIONING SYSTEM Final
Technical Report (Northwestern
Univ.) 2 p

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Unclass

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FINAL REPORT

NASA Grant NAGW-2522

STRAIN ACCUMULATION MONITORING IN THE NEW MADRID SEISMIC ZONE USING THE GLOBAL POSITIONING SYSTEM

The grant supported the multi-institution New Madrid seismic zone GPS experiment (Northwestern, JPL, North Carolina State, Memphis State and Missouri) conducted in November 1991. The survey involved 50 scientists and 25 GPS receivers, operating in five states.

Data were processed using JPL GIPSY software. Processing strategy was to use data from about 15 global tracking sites together with that from our regional (NMSZ) sites in the analysis to help constrain satellite orbits, and to tightly constrain positions of several of these global tracking sites to fix our reference frame. The original data were either decimated or compressed from their 15-second data interval to a 2-minute data interval, and were then edited and processed. 6-minute data intervals are routinely used in GIPSY analysis, therefore we processed 3X the normal volume of data in our analysis. Daily solutions were obtained for the regional network and repeatabilities for the entire experiment were then calculated about the weighted means (with respect to formal errors given by the GIPSY filter) of baseline components (N,E,V, and L).

Follow-up funding for the second experiment (fall 1993) was provided under a successor grant, NAG 5-2431.